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OBJECTIVES: To evaluate the long-term cost-effectiveness of dapagliflozin versus a sulfonylurea (SU) or a dipeptidyl-peptidase-IV (DPP-4) inhibitor, when added to metformin, in Type 2 diabetes mellitus (T2DM) patients inadequately controlled on metformin in Greece. **METHODS:** The published and validated CARDIFF diabetes model, a lifetime micro-simulation model, was adapted to the Greek health care setting to determine the incidence of micro- and macro-vascular complications and diabetes-specific and all-cause mortality. Clinical inputs were derived from a 52-week randomized clinical trial and a network meta-analysis comparing dapagliflozin with SU and DPP-4 inhibitor, respectively, in combination with metformin. Local unit costs and utility data were retrieved from literature and assigned to model parameters to calculate total quality-adjusted life years (QALYs) and total costs as well as incremental cost-effectiveness ratios (ICERs).The analysis was conducted from the perspective of a third-party payer in Greece. Uncertainty surrounding important model parameters was explored with probabilistic sensitivity analysis (PSA). **RESULTS:** Over a patient's lifetime, dapagliflozin was associated with 0.488 (95% CI: 0.477-0.5) and 0.042 (95% CI: 0.03-0.054) incremental QALYs compared with SU and DPP-4 inhibitor, respectively, at additional costs of €5,149 (95% CI: €5,026-€5,272) and €755 (95% CI: €636-€874), respectively. These findings were mainly driven by the beneficial effect of dapagliflozin on weight, and its higher drug acquisition costs. The corresponding ICERs were €10,545 and €17,871 per QALY gained versus the treatment with SU and DPP-4, respectively. At the defined willingness-to-pay threshold of €34,000 per QALY gained, PSA results showed that treatment with dapagliflozin was estimated to have a 99% and 57.5% probability of being cost-effective relative to the SU and DPP-4 treatments. **CONCLUSIONS:** Dapagliflozin in combination with metformin was shown to be a cost-effective treatment alternative for patients with T2DM whose metformin regimen does not provide sufficient glycemic control in the current Greek health care setting.

PDB56

COST-EFFECTIVENESS OF DULAGLUTIDE 1.5MG ONCE WEEKLY FOR THE TREATMENT OF PATIENTS WITH TYPE TWO DIABETES MELLITUS IN SWEDEN

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OBJECTIVES: Dulaglutide 1.5mg once weekly is a novel glucagon-like peptide 1 receptor (GLP-1) agonist, for the treatment of type 2 diabetes mellitus (T2DM). The objective of this analysis was to estimate the cost-effectiveness of dulaglutide versus liraglutide 1.8mg and liraglutide 1.2mg for the treatment of T2DM in Sweden. **METHODS:** The IMS CORE Diabetes Model (CDM), a validated simulation model, was used to estimate expected costs and outcomes. The comparators investigated were liraglutide 1.8mg and liraglutide 1.2mg. In accordance with Swedish guidelines the analysis was conducted using a societal perspective including Swedish-specific direct and indirect costs over a lifetime time horizon. Comparative safety and efficacy data were derived from direct comparison of dulaglutide 1.5mg versus liraglutide 1.8mg from the AWARD-6 trial and from a network meta-analysis for the comparison of dulaglutide 1.5mg versus liraglutide 1.2mg. One-way and probabilistic sensitivity analyses were conducted to explore the sensitivity of the model to plausible variations in key parameters and overall uncertainty. **RESULTS:** Under base case assumptions, dulaglutide 1.5mg was found to be less costly and more effective versus liraglutide 1.8mg (total costs 1,032,258 SEK vs 1,045,927 SEK; total QALYS 8.062 vs 8.033 for dulaglutide 1.5mg and liraglutide 1.8mg, respectively) and liraglutide 1.2mg (total costs 1,048,832 SEK vs 1,051,224 SEK; total QALYs 8.016 vs 7.974 for dulaglutide 1.5mg and liraglutide 1.2mg, respectively). One-way sensitivity analyses demonstrated that dulaglutide 1.5mg remained dominant versus liraglutide 1.8mg given plausible variations in key input parameters. Results of the probabilistic sensitivity analysis were consistent with base case results. **CONCLUSIONS:** In the base case, the model found that dulaglutide 1.5mg was more effective and less costly than liraglutide 1.8mg and liraglutide 1.2mg for the treatment of T2DM in Swedish setting. Findings were robust to plausible variations in inputs. The introduction of dulaglutide 1.5mg may result in societal cost savings.

PDB57

DAPAGLIFLOZIN VERSUS A DIPEPTIDYL PEPTIDASE 4 INHIBITOR (DPP4) BOTH ADDED TO METFORMIN IN PATIENTS WITH TYPE 2 DIABETES MELLITUS (T2DM): IMPACT ON HEALTH, QUALITY OF LIFE AND COSTS IN THE TURKISH CLINICAL SETTING

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OBJECTIVES: Dapagliflozin, a sodium-glucose-transporter-protein-2 (SGLT2) inhibitor, can serve as a treatment for type 2 diabetes mellitus (T2DM) in patients inadequately controlled on metformin mono-therapy. The relative health benefits and costs of dapagliflozin compared to a dipeptidyl-peptidase-4 inhibitor (DPP4), added to metformin, were assessed through a cost-effectiveness analysis (CEA) from a Turkish payer perspective. **METHODS:** For the current CEA, a micro-simulation disease model (CARDIFF) was used. Clinical inputs were derived from a systematic review and network meta-analysis, along with a long-term follow-up study for dapagliflozin. In addition, Turkish specific cost data were collected and applied. The model predicted micro-and macro-vascular complications based on the UKPDS equations. Total Quality-Adjusted-Life-Years (QALYs) and costs were calculated over a lifetime horizon. Deterministic, probabilistic sensitivity analyses and elaborate scenario analyses were performed. **RESULTS:** Compared to DPP4, dapagliflozin was associated with an incremental benefit of 0.590 QALYs (95% CI: 0.038; 1.232) and cost savings of TRY 494 (95% CI: TRY-1,727; TRY 889). Results were sensitive to changes in treatments' effect on weight and HbA1c, and in utility values related to weight changes. Dapagliflozin's higher health benefits and cost savings are mainly explained by its greater beneficial effect on weight, leading to higher QALYs and less drug costs for dapagliflozin patients. The lower treatment costs are related to the insulin treatment costs (i.e. subsequent line regimens) due to the lower weight of dapagliflozin patients observed over time, which eventually leads to lesser insulin dosage. **CONCLUSIONS:** Dapagliflozin is a cost-saving strategy with higher health benefits compared to DPP4, added to metformin, for Turkish T2DM patients inadequately controlled on metformin mono-therapy.

PDB58

A SYSTEMATIC REVIEW OF COST-EFFECTIVENESS MODELS IN TYPE 1 DIABETES MELLITUS

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OBJECTIVES: Economic modelling in type 1 diabetes mellitus (T1DM) is complex and continuously evolving. The aim of this systematic review was to assess methodological capabilities of T1DM models. **METHODS:** A systematic search was undertaken in MEDLINE®, Embase®, and the Cochrane library to identify economic evaluation models in T1DM (English language until November 2014). The websites of HTA bodies in England, Canada, Australia, France, Germany, Scotland and Spain were also screened. Study inclusion was based on a pre-specified protocol and carried out by a team of reviewers and information scientists independently, and data was extracted focusing on methodological capabilities. **RESULTS:** 74 publications describing 13 unique models were identified. Most models employed a Markov structure, and all included microvascular complications while five included both microvascular and macrovascular complications. Patient-level (microsimulation) and cohort approaches were equally common. While naturally varying across models, the risk equations that simulated event rates were generally based on a small set of studies which are now more than 20 years old. Treatment-effects were simulated in several ways; the more comprehensive models used surrogate risk factors (mostly HbA1c) to modify the risk of complications, but other approaches included directly modifying complication rates, quality-of-life, and/or resource use. The most common adverse events included in the models were hypoglycemia and ketoacidosis. Although the details provided varied, five models explicitly reported probabilistic sensitivity analysis capabilities. **CONCLUSIONS:** There was considerable heterogeneity in the models, likely driven by varying intended uses. The sub-set of models clearly intended for cost-effectiveness applications used more sophisticated approaches to capturing uncertainty and were among the most comprehensive, tending to include both micro- and macrovascular outcomes and common treatment-related adverse events. These models are likely to provide the most useful set of model capabilities despite relying on aging risk equations.

PDB59

THE COST-EFFECTIVENESS OF CANAGLIFLOZIN (CANA) VERSUS DAPAGLIFLOZIN (DAPA) 10MG AND EMPAGLIFLOZIN (EMPA) 25MG IN PATIENTS WITH TYPE 2 DIABETES MELLITUS (T2DM) AS MONOTHERAPY IN THE UNITED KINGDOM

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OBJECTIVES: To estimate the cost-effectiveness of using CANA versus DAPA or EMPA, three agents that inhibit sodium glucose co-transporter 2 (SGLT2), as monotherapy from the UK NHS perspective. **METHODS:** The validated ECHO-T2DM model was used to estimate 40-year outcomes and costs associated with using CANA 100 or 300mg versus DAPA 10mg or EMPA 25mg. Data from a 26-week network meta-analysis (NMA) performed to support a NICE multiple technology assessment were used to populate the model with treatment effects for HbA1c, blood pressure, weight and rates of hypoglycaemic events (hypoglycaemia data for EMPA were not possible to report from the NMA). Changes in lipids and rates of adverse events (AEs) associated with SGLT2 inhibition (i.e., urinary tract infections, genital mycotic infections) were sourced from a CANA monotherapy trial; values for DAPA and EMPA were assumed the same as CANA 100mg (as was the hypoglycaemia rate for EMPA). Sensitivity analyses were also performed. **RESULTS:** In the base case, CANA 100mg dominated DAPA and EMPA with quality-adjusted life-year (QALY) gains of 0.033 and 0.015 and lower total costs of £69 and £3. CANA 300mg versus DAPA provided an estimated QALY gain of 0.075 and increased cost of £709, resulting in an incremental cost-effectiveness ratio (ICER) of £9,429. Versus EMPA, the ICER was slightly higher (£13,491), but still below the generally accepted threshold in the UK, with a QALY gain of 0.056 and an increased cost of £761. Sensitivity analyses supported these base case findings. **CONCLUSIONS:** Through an insulin-independent mechanism of action, agents that inhibit SGLT2 improve glucose levels, blood pressure, and weight, with a low inherent risk of hypoglycaemia. These results suggest that both CANA 100 and 300mg are likely to be cost-effective monotherapy options versus DAPA and EMPA in the UK.

PDB60

COST-EFFECTIVENESS ANALYSIS OF GESTATIONAL DIABETES MELLITUS SCREENING IN URBAN CHINESE SETTING

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OBJECTIVES: Gestational diabetes mellitus (GDM) is associated with elevated risk of severe perinatal complications and type 2 diabetes (T2DM). Screening and intervention is recognized as an effective way to reduce these risks. The prevalence rate of GDM was as high as 17.5% in China, which caused a huge economic burden. GDM screening and intervention was reported in many hospitals in China, however, lacking evaluation from an economic perspective up to now. The objective was to estimate the long-term cost-effectiveness associated with GDM screening in the urban Chinese setting to provide economic evidence for clinical practice and

policy making. **METHODS:** A published decision-analysis tool (the GeDiForCETM) was employed to assess cost-effectiveness of GDM screening by comparing costs and averted disability-adjusted life years (DALYs) with no GDM screening. As modeling inputs, costs for GDM screening and antenatal care, incidence and cost of GDM perinatal adverse effects (PAE) were based on an investigation on 6 tertiary hospitals from different cities in China as part of this analysis. Cost for postpartum care was calculated based on literature and adjusted for China. PAE-DALYs, lifetime cost for postpartum T2DM, and effectiveness of interventions were collected from literature. Annual discount rate was 3.0%. One-way sensitivity analyses were conducted on some key indicators. **RESULTS:** The total costs of GDM screening, intervention and life-time treatment per 1000 pregnant women were $7,092,398 in GDM screening group, saving $1,329,671 comparing with no screening. 277.4 DALYs were averted in screening group, which was mainly brought out by GDM postpartum care for T2DM prevention. Sensitivity analyses demonstrated robustness of the results. **CONCLUSIONS:** GDM screening and interventions are cost-saving in an urban Chinese setting by IADPSG standards. As DALYs averted mainly comes from T2DM prevention, China should pay more attention to providing postpartum care for GDM women in the future.

PDB61

COST OF REACHING DEFINED HBA1C TARGET USING CANAGLIFLOZIN COMPARED TO DAPAGLIFLOZIN AS ADD-ON TO METFORMIN IN PATIENTS WITH TYPE 2 DIABETES MELLITUS (T2DM) IN THE UNITED ARAB EMIRATES (UAE)

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OBJECTIVES: Improving glycaemic control is the primary goal of T2DM management and can help to reduce the risk of micro- and macrovascular complications. Guidelines from the American Diabetes Association and European Association for the Study of Diabetes recommend lowering HbA1c to levels <7.0% for most patients. This analysis compared the cost of reaching this target (HbA1c <7.0%) using canagliflozin versus dapagliflozin, two compounds that inhibit sodium glucose co-transporter 2 (SGLT2), in dual therapy as add-on to metformin from the payer perspective in the UAE. **METHODS:** A Bayesian network meta-analysis (NMA) was conducted to compare the efficacy of canagliflozin 100 and 300 mg versus dapagliflozin 10 mg in terms of the percentage of patients that achieved the HbA1c goal of <7.0% at 26 weeks. Based on the NMA results and the acquisition cost of dapagliflozin in the UAE ($1.77 per day), we calculated what the daily acquisition cost of each dose of canagliflozin would be if the costs of a patient reaching the target with canagliflozin 100 and 300 mg were equalized to the cost of reaching the target with dapagliflozin 10 mg. **RESULTS:** In dual therapy as add-on to metformin, patients using canagliflozin 100 and 300 mg were more likely to achieve HbA1c <7.0% compared to those using dapagliflozin 10 mg, with odds ratios of 1.3 (Pr=82%) and 1.7 (Pr=96%), respectively. The costs of canagliflozin 100 and 300 mg that equalized the cost of reaching HbA1c <7.0% with dapagliflozin 10 mg were $2.11 and $2.45 per day, respectively. **CONCLUSIONS:** These results suggest that adding canagliflozin 100 or 300 mg instead of dapagliflozin 10 mg in patients inadequately controlled on metformin would result in a more efficient use of resources with costs per day up to these break-even levels.

PDB62

COST-EFFECTIVENESS ANALYSIS OF VILDAGLIPTIN VS. GLIMEPIRIDE AS ADD-ON TO METFORMIN IN THE MANAGEMENT OF TYPE 2 DIABETES MELLITUS IN GREECE

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OBJECTIVES: This study was designed to assess the cost-effectiveness of vildagliptin versus glimepiride as add-on to metformin in the management of type 2 diabetes mellitus (T2DM) patients in the Greek healthcare setting. **METHODS:** A cost-effectiveness model was designed, using MS Excel, to compare two treatment strategies. Strategy 1 consisted of first-line metformin, followed by metformin + vildagliptin in second-line, and metformin + basal insulin and metformin + basal + rapid insulin in subsequent lines. Strategy 2 differed from strategy 1 only in second-line, where metformin was administered with glimepiride. Clinical data and utilities were taken from the published literature. Only direct medical costs were included in the analysis (cost base year 2014), and consisted of drug, side-effect and comorbidity costs (taken from local officially published sources and the literature). The perspective adopted was that of the Social Insurance Fund. The time horizon was lifetime, and costs and outcomes were discounted at 3.5%. **RESULTS:** Adding vildagliptin to metformin increased drug costs compared with adding glimepiride to metformin (€2,853 vs. €2,427, respectively). However, this increase was completely offset by a decrease in the costs of associated comorbidities (€4,393 vs. €4,539) and side-effects (€3,015 vs. €3,510), resulting in a lower total cost of €214.6 in strategy 1 compared with strategy 2. Comorbidities were the largest cost component in both strategies, accounting for 42.8% and 43.3% in strategies 1 and 2, respectively. Strategy 1 was also associated with increased life-years (LYs, 0.11) and quality-adjusted life-years (QALYs, 0.11) compared with strategy 2. Strategy 1 is therefore dominant, as it is associated with both lower overall costs and increased effectiveness. **CONCLUSIONS:** Vildagliptin as add-on treatment to metformin in the management of T2DM in Greece appears to be dominant vs. glimepiride in terms of both cost per LY and cost per QALY gained.

PDB63

COST-EFFECTIVENESS OF SITAGLIPTIN COMPARED TO SULPHONYLUREA AS AN ADD-ON TO METFORMIN IN THE TREATMENT OF TYPE 2 DIABETES IN GREECE

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OBJECTIVES: Despite relevant treatments, only 29% of type 2 diabetes (T2DM) patients in Greece achieve their pre-defined glycemic targets. When treatment with metformin (MF) fails to control T2DM patients, add-on therapies are needed. Sitagliptin is indicated as second-line therapy in Greece, after treatment with MF has failed and is a valid option in the proposed national therapeutic protocols. The present study aimed to assess the cost-effectiveness of adding Sitagliptin to MF vs adding sulphonylurea (SU) to MF for the treatment of T2DM patients with inadequate glycemic control. **METHODS:** A published individual-level simulation model was developed to simulate the lifetime medical cost, diabetic complications, drug-related adverse events, life expectancy and quality adjusted life years (QALYs) associated with Sitagliptin add-on therapy versus SU add-on therapy. The model is developed based upon the UKPDS 68 risk equations to project long-term complications and mortalities. Efficacy and safety profiles of drugs were obtained from a head-to-head trial. Costs (€ 2014 prices) and effects were discounted at 3.5% annually. Greek data retrieved by an expert input forum of specialists. Sensitivity analyses performed on 17 parameters. Analysis based on Greek payer perspective. **RESULTS:** Sitagliptin strategy is projected to cost 359 EUR more than SU strategy per patient over lifetime. Sitagliptin showed reductions in diabetes-related complications and adverse events. The incremental QALY for Sitagliptin strategy is 0.042, primarily driven by the improved outcomes associated with hypoglycemia, body weight change, and MI. The incremental cost effectiveness ratio (ICER) is 8,582 €/QALY gained. Sensitivity analysis conducted varied multiple parameters. ICER ranges from 4,873 to 12,173 €/QALY gained. The results are robust and never exceeded the 30,000€/QALY threshold. **CONCLUSIONS:** Sitagliptin add-on strategy could be cost-effective, compared to SU, for the Greek healthcare setting. Furthermore, it remains cost-effective in all types of sensitivity analysis.

PDB64

ECONOMIC EVALUATION OF SAXAGLIPTIN IN COMBINATION WITH METFORMIN VERSUS SITAGLIPTIN OR VILDAGLIPTIN IN COMBINATION WITH METFORMIN IN PATIENTS WITH TYPE 2 DIABETES IN RUSSIA

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OBJECTIVES: to assess the cost effectiveness of saxagliptin (SAXA) vs sitagliptin (SITA) or vildagliptin (VILDA) as add-on therapy to metformin (MET) in patients with type 2 diabetes mellitus (T2DM) and inadequate glycaemic control on metformin alone. **METHODS:** the Cardiff Diabetes Model was adapted to the Russian healthcare setting. We modeling events, efficacy, total costs for managing patients with T2DM: 1-st line – monotherapy metformin alone, 2-nd line (target groups) – SAXA or SITA or VILDA plus metformin, 3-nd line – insulin rescue therapy. The model simulated the disease progression and treatment effects for 40 years (8-26-6 years for 1-2-3 lines respectively). The effectiveness measure was quality-adjusted life years (QALYs) gained per patient. **RESULTS:** in case short-time efficacy (decrease HBA1c -1%) cost-effectiveness ratio (CER) for SAXA+MET was the lowest: $835 per QALY. When compared with SITA+MET for the long-term efficacy (40 years), SAXA+MET was the dominant strategy, i.e. less costly (-$505) and more effective (+0.16 QALY). When compared to VILDA+MET, SAXA+MET was more costly (+$364), but more effective (+0.14 QALY). The incremental cost-effectiveness ratio (ICER) per responder for SAXA+MET vs VILDA+MET was estimated at $2,566 per QALY gained and would be cost effective at the willingness-to-pay (WTP) threshold $36,373/QALY for Russia in 2014. If we used combined medicines: Kombiglyce (SAXA+MET), Janumet (SITA+MET) and Galvus Met (VILDA+MET), then Kombiglyce interventions were also more efficacious than Janumet and Galvus Met, but were associated with increased total costs. The ICERs per responder for Kombiglyce were estimated at $3,216/QALY (vs Janumet), $3,269/QALY (vs Galvus Met) and would be cost effective at the WTP threshold $36,373/QALY for Russia in 2014. **CONCLUSIONS:** at a willingness-to-pay threshold of $36,373/QALY SAXA+MET and Kombiglyce is likely to be a cost-effective option for the treatment of T2DM in adult patients in Russia.

PDB65

ECONOMIC EVALUATION OF SECOND LINE ORAL ANTIDIABETICS FOR TYPE 2 DIABETES IN COLOMBIA

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OBJECTIVES: Establish incremental cost-effectiveness ratio (ICER) in cost per additional patient with glycemic control for all the oral antidiabetic medications available in Colombia, as a second-line treatment for adult patients with type 2 diabetes (DM2), who do not reach therapeutic targets with metformin and are not yet considered candidates for insulin therapy. **METHODS:** Oral antidiabetic medications were divided into drug classes: sulfonylureas (divided between glibenclamide, other sulphonylureas), thiazolidinediones, GLP-1 receptor agonists, and DPP4 inhibitors. A systematic review of the literature was done to obtain transition probabilities in a Markov model (monthly cycles, time horizon one year) designed to represent the Colombian health system perspective. The main outcome considered was glycemic control, but data on adherence and adverse events were also collected. Costs (in 2014 Colombian pesos; 1 euro = COP 2,660) were estimated from base cases obtained from multidisciplinary expert panel meetings, with local costs applied from national tariff manuals and official drug price registries. Sensitivity analyses were performed. **RESULTS:** Annual treatment costs ranged from € 116 for glibenclamide, and € 98 for other sulphonylureas, to € 12,205 for GLP-1 receptor agonists. Number of patients with glycemic control (per 1000) were glibenclamide 145, sulphonylureas 265, thiazolidinediones 472, GLP-1 receptor agonists 326, and DPP4 inhibitors 417: Compared against other sulfonylureas, glibenclamide was dominated, while ICERs per additional patient with glycemic control per year would be € 516 for DPP-4 inhibitors, € 712 for thiazolidinediones and € 66,790 for GLP-1 receptor agonists. Critical variables in the sensitivity analyses were drug costs (particularly for GLP-1 receptor agonists), but also patient